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U. S. DEPARTMENT OF AGRICULTURE Office of Information Press Service

WASHINGTON, D. C.

RELEASE FOR PUBLICATION
MARCH 6, 1935 (WEDNESDAY)

THE MARKET BASKET

by

Bureau of Home Economics, U. S. Department of Agriculture

FAMILY FOOD GUIDE TO LOW-COST BALANCED DIET

Every meal -- Milk for children, bread for all

Every day --

Cereal in porridge or pudding

Potatoes

Tomatoes (or oranges) for children

A green or yellow vegetable

A fruit or additional vegetable

Milk for all

Two to four times a week --

Tomatoes for all

Dried beans and peas or peanuts

Eggs (especially for children)

Lean meat, fish, or poultry, or cheese

THE SOUPBONE

When meat prices rise and the family purse stays rather flat, there is still the old soupbone. It furnishes the beginnings of a hot dish that can be most cheerful, appetizing, and nutritious. But without some counting of the food values that are in it, the nice hot bowl of soup may fail us dismally before many hours have passed. So it may be well to see just how much we can put into soup in the way of actual nourishment, suggests the Bureau of Home Economics of the U. S. Department of Agriculture.

We use the soupbone for all it is worth, that's certain. First we get the butcher to crack it, so we can get the marrow. We put the bone in the pot in water to cover, and there we let it simmer for hours. We do this to get all the flavor and food value out of the bone itself and out of the meat that is on it. These go into the water and make the meat stock. Together, then, with the meat still left on the bone, what have we here in food values?



From the marrow of the bone we get fat, some protein, and some iron. A little calcium will dissolve from the inner part of the bone, and some of the bone tissue will be converted into gelatine. The meat on the bone will give up fat and some minerals and vitamin G, but will keep most of its protein values. Therefore the more meat you have with the bone and serve with the stock the greater the food value of the dish. As to the stock alone, the more concentrated it is the greater its food value. There is not much food value if the stock is thin and there is still less if you strain it.

It is safest, from the standpoint of food values, to count on meat stock primarily for its meat flavor, using its protein and fat and minerals as far as they go but depending for food value more upon the foods you add to the soup. You add any vegetable you have on hand - perhaps also rice, or barley, or . . . spaghetti, or noodles, if you like a thick soup.

But when you are counting food values, you have to consider the food content of each vegetable you add to the soup, and the quantity of each, as well as the flavor. A "soup bunch," for instance, may be a good investment for blended flavors and variety of food values, but it is not big enough to add much substance. If you put plenty of rice and tomatoes in the soup, however, and serve with it cheese toast, say, you have a good meal. Or add potatoes to the soup, or carrots, or turnips, or all of these, maybe cabbage too, and you have another good combination.

Beans or lentils or peas add more food value to meat stock than perhaps any other vegetables, because they are concentrated foods and contain minerals and protein which supplement the minerals and proteins of the meat stock. You may, however, prefer to make your bean soup with stock from ham bone, to get the cured meat flavor, and that will give you the same food values you get from the beef bone. From the salt pork, so often cooked in bean soup, you get fine flavor but not as many food values as from the soupbone or the ham bone, because the salt pork lacks the bone and has less lean meat.



A good way to vary flavor in meat and vegetable soup is to brown the vegetables in fat before putting them into the meat stock. Rice is good treated this same way.

A nice touch to add to bean or pea or lentil soup, if you have a bit of leftover sausage meat, is to break this up and brown the pieces, then sprinkle them over the soup. Or sprinkle the soup with chopped parsley, and with toasted cubes of bread.

In other countries, where they keep the soup pot on the fire all the time, they increase the food value of some of their soups by adding sour milk, or curd-- or sometimes sour cream.

RECIPES

Meat and Vegetable Soup

Select a beef bone or knuckle of veal and have the bone cracked to get out all the good flavor and nutriment. Wash the bone and be careful to remove any small slivers. Put the bone in a large kettle, cover with water, and simmer for 2 to 3 hours, or until the meat is tender. In the meantime chop 3 or 4 onions and 3 or 4 stalks of celery and add to the broth. Also add a No. 2 can of tomatoes and 1 quart of diced vegetables, such as carrots, turnips, and potatoes. Simmer gently until the vegetables are tender, but not broken. Season to taste with salt and pepper. Serve the meat with the soup, either left on the bone or ground and added to the soup. Or save the meat to make hash or croquettes.

To make even more substantial soup add rice, or short pieces of macaroni or spaghetti, or pearl barley, or cracked wheat.

Bean or Pea Soup with Cured Pork

Wash one-half pound of dried beans or peas and soak overnight in about 1 quart of water. Wash and scrape a ham hock, put into a kettle, and add water to cover. If the meat is very salty, change the water several times. Simmer until the meat is tender. If convenient, allow the hock to cool in the pot liquor. Skim off the fat.

Cook the soaked beans or peas in the pot liquor which has been diluted with water until it does not taste too salty. Add a chopped onion. When the vegetables are soft, press them through a sieve. To the soup stock add the puree, together with some of the pork, chopped, and mix thoroughly. To give the right consistency, add a little flour mixed with cold water and cook for a few minutes, stirring constantly. Add salt if needed.



Borsch (Adapted from a Russian recipe.)

2 cups minced raw beets	2 tablespoons fat
1/4 cup chopped onion	2 quarts meat stock
1/3 cup chopped cabbage	Pepper
1 potato, chopped	Salt
1 turnip, chopped	Sour cream (or 1 tablespoon
1 carrot, chopped	vinegar or lemon juice)

Brown the vegetables together in the fat. Add them to the stock and simmer until the vegetables are tender. If sour cream is used, add a tablespoonful to each serving. Otherwise, add 1 tablespoon of vinegar or lemon juice to the stock before serving.

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WASHINGTON, D. C.

RELEASE FOR PUBLICATION
MARCH 13, 1935 (WEDNESDAY)

THE MARKET BASKET

by

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Eggs (especially for children)

Lean meat, fish, or poultry, or

Cheese

PROTEIN COOKERY - MEAT

A piece of meat, food chemists say, consists mainly of protein, fat and water -- much more water than anything else. But there are also dissolved mineral salts - calcium, phosphorus, iron and others. And there are vitamins in both the lean and the fat. But when you cook meat, your results depend almost entirely upon the behavior of the proteins.

There are many different proteins in meat. Some are in the muscle fibers which make up the lean parts. Others are in the tissues that hold the muscle fibers together and that make up the tendons or "gristle". The red color of lean meat is due to a protein - hemoglobin - which contains iron. The flavor of most meats is due to "extractives", which are soluble compounds derived from proteins.

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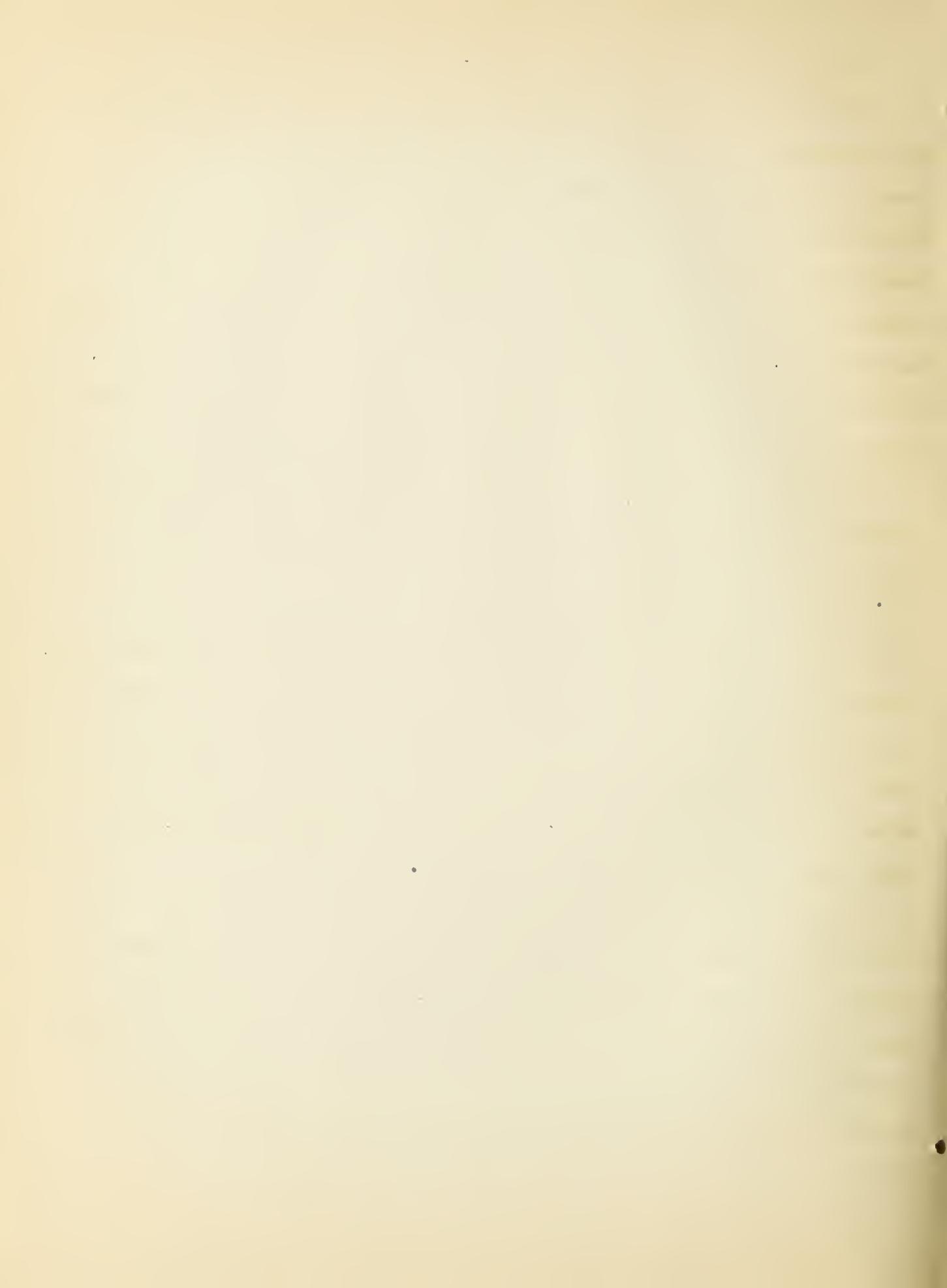
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The proteins in the muscle fibers or lean parts of meat, besides hemoglobin, are myosin and myogen, the chemist tells us, and these are proteins that "set" or coagulate when heated. Heated just right they remain tender. With too much heat they harden. The proteins in the connective tissue -- collagen and elastin -- behave quite differently. One of them, collagen, is converted into gelatin when cooked in water, especially if there is acid in the water. The other one, elastin, does not change with cooking. The tenderness of the cut to begin with depends, in fact, upon how much connective tissue is in it and how much elastin is in that tissue. The amount of connective tissue, says the Bureau of Home Economics of the U. S. Department of Agriculture, is what tells you whether to cook the particular piece of meat in a way to keep it tender, or in a different way -- not to keep it tender, but to make it tender.

There is more difference in the tenderness of beef cuts than of any other meat. A full-grown animal contains more connective tissue than young animals have, and there is more elastin in some parts of the body than others. Veal is practically all tender because the animal is young. So is lamb. Most pork is tender because chiefly the young animals are slaughtered. The tender cuts of beef are roasts and steaks from the rib and loin. The less tender cuts are chuck, brisket, plate, rump, round, and flank, where there is more connective tissue.

So then, if you are cooking a cut that is tender to start with -- a porterhouse steak or a prime rib roast -- you are concerned chiefly with the proteins of the lean parts, and can more or less forget the connective tissue because there is so little of it. The cooking of such a cut is mainly a matter of controlling the heat -- having the heat high enough to develop flavor, then low enough to keep the proteins of the lean parts tender.

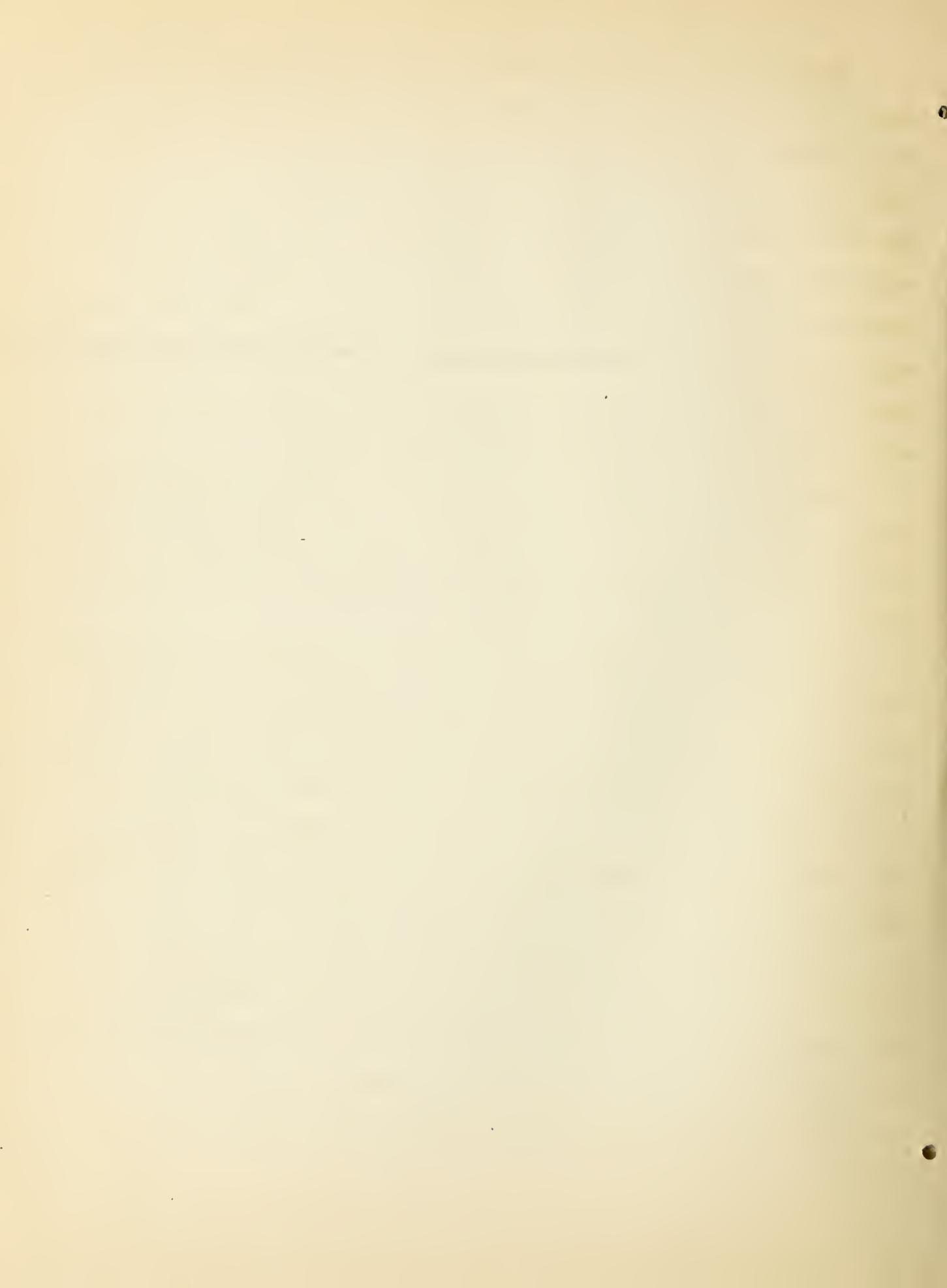


When you broil a porterhouse steak, or some other tender cut, you trim and wipe off the meat, put it on a rack under a hot flame and brown both sides; or if you are cooking it on top of the stove, you put it in a sizzling hot pan with a little fat to keep it from sticking, and brown it on both sides. The fat, and also the "extractives" are affected by this browning in such a way as to develop their flavor and therefore the flavor of the meat. But as soon as you have browned the outside of the steak you lower the heat and cook slowly until the heat has penetrated, and the steak is "rare", "medium", or "well-done", as you choose. That will be when the proteins of the lean part have "set" or coagulated to the degree you like, and this you judge by the change in color.

When you roast a tender cut, the principle is the same as for broiling, but you cook the roast in the oven, in an open pan. The points here, again, are to develop flavor by browning and to have the heat penetrate slowly to all parts of the roast, until it is "done" to suit you.

But if you have a cut that is not so tender to begin with -- a chuck roast, or a flank steak, for example -- you have more connective tissue to deal with. Besides controlling the heat to keep the lean parts tender, you add moisture and cook until you have softened the connective tissue as much as possible -- which is to say until the collagen in that tissue has been converted, by hydrolysis, into gelatin. This will happen faster if you put some acid in the water in which the meat is cooked -- vinegar, or tomato juice, for example.

For a pot-roast, you probably use the chuck, round, rump, or some other cut which has so much connective tissue that it must be made tender. You braise this kind of piece; that is, after browning it in hot fat, to develop the flavor, you lower the heat, add a little water, cover tightly and cook slowly until as much as possible of the connective tissue has gone into gelatin and the meat is tender.

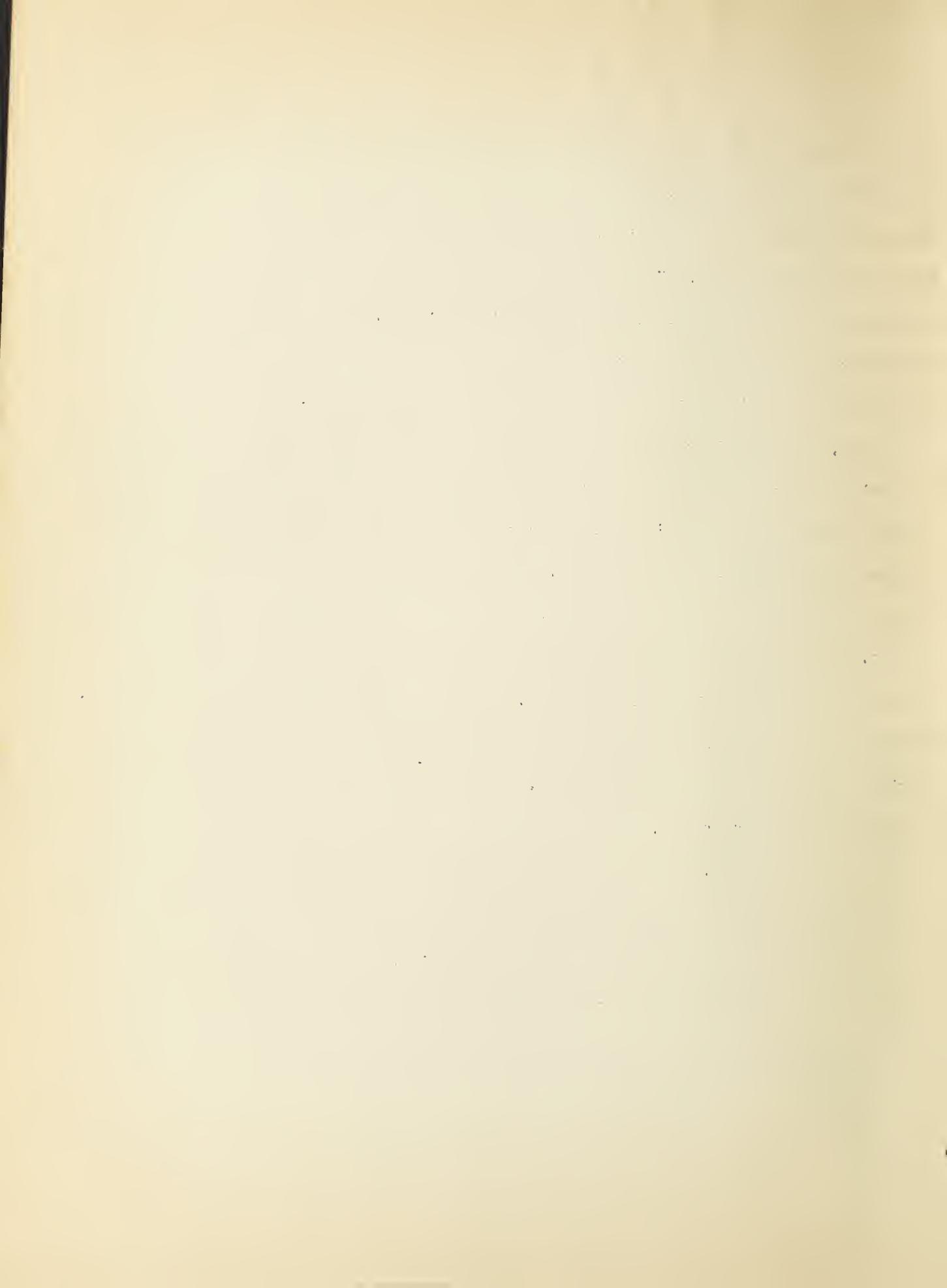


A Swiss steak, also, is braised -- first browned for flavor, then cooked with added moisture under a cover. But the piece of meat you use this way is a thinner cut than a roast. You pound it to break up some of the connective tissue. And to save juices and flavor, you pound flour into it. Then you cook it at low temperature -- and to speed up the cooking process and get a different flavor, you probably add acid in the form of tomatoes or tomato juice, or vinegar, or sour cream, or lemon juice.

Another way of making such cuts tender is to cut them into small pieces and make a stew or shepherd's pie, or chop or grind them for patties, for a loaf, or to spread on toast. When the meat, connective tissue and all, is cut up small, the tough parts will not be noticeable, and you can broil or bake as well as stew it.

There are other things, of course, that have to do with the cooking of meat. Fatness is one of them. A good deal of meat now on the market (because of last year's drought) has less fat than usual. When meat has very little fat, it is best, whether tender or not, to add fat for richness and good flavor, and cook it with added moisture.

When all is said and done, there are just two principal ways to cook meat. You cook it either with or without added moisture. You choose between these methods according to the cut of the meat, its tenderness, and the amount of fat on it. But in either case you cook with low temperature because it is a protein food.



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 MARCH 20, 1935 (WEDNESDAY)

THE MARKET BASKET

by

Bureau of Home Economics, U. S. Department of Agriculture

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FAMILY FOOD GUIDE TO LOW-COST BALANCED DIET

Every meal -- Milk for children, bread for all

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Cereal in porridge or pudding
 Potatoes
 Tomatoes (or oranges) for children
 A green or yellow vegetable
 A fruit or additional vegetable
 Milk for all

Two to four times a week --

Tomatoes for all
 Dried beans and peas or peanuts
 Eggs (especially for children)
 Lean meat, fish, or poultry, or
 cheese

PROTEIN COOKERY - MILK AND CHEESE

Milk, although it has a variety of food values, is classed as a protein food. It contains more fat than protein, more sugar than fat, and a considerable quantity of mineral salts and other substances. But your glass of milk is almost seven-eighths water, so all the other substances combined amount to scarcely 13 percent of the whole. Of protein there is only about 3-1/3 percent.

*This by
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Original said
"But it is very
efficient protein."*

Milk, however is very "efficient" protein, the nutritionist will tell you, and provides two kinds, each important in the diet. And you are supposed to have, says the Bureau of Home Economics of the U. S. Department of Agriculture, more than one glass of milk every day, or the equivalent in some other form -- skim milk and butter, maybe, in a soup or sauce. Skim milk gives you most of the food values of whole milk, for when the cream is taken off most of the protein and most of



the mineral salts are left in the milk. What you lose is most of the fat, which you get in butter, along with the vitamin A that is in the fat.

One of the milk proteins is the same as one of the proteins of egg-white -- albumin. The other milk protein is a phosphorus-containing compound called casein, which is the chief substance in cheese. In cottage cheese made of skim milk, as it usually is, the protein is largely casein.

Milk proteins behave in certain ways of their own when cooked. The albumin coagulates when heated, as it does in egg white. You see it on the sides of the pan almost as soon as you put the milk on the stove. But this is not the chief problem with which you are concerned in cooking milk. As long as milk is sweet, you can boil it, or you can pasteurize it, or you can just warm it, and the only thing you need bother about is to keep it from scorching and stir back into it the white coating that forms on the sides and bottom of the pan and the skin that forms on top. The coating on the sides and bottom of the pan is composed not only of albumin but some calcium that is collected with it. The skin on top is casein, calcium, and some fat, and probably other constituents of the milk. You do not want to lose those food values, so you stir them back into the milk.

But sour milk, or milk that has just begun to turn, even though not yet sour to the taste, will curdle if you heat it. In other words, the acid in the milk precipitates the casein as soon as the milk is heated; that is, the casein separates out, and you have curds and whey. This is what you want when you are making cottage cheese -- in fact, cottage cheese is curd with some of the whey squeezed out.

But the cheese will be tough or tender according to the way the milk has been heated. Heating at very low temperature (lukewarm) keeps the curd soft, tender and moist. High temperature makes it tough and dry.



Of course this same separation of the casein occurs if you let the milk sour naturally. The souring is due to "friendly germs", lactic acid bacteria, which are naturally present in milk and in the air. They act upon the milk sugar (lactose) and turn it into lactic acid. How soon this may happen depends chiefly on the temperature at which the milk is kept. In a refrigerator at 45° F. or below, good milk will stay sweet for several days, because the cold slows up the growth of the bacteria. In time, however, the milk gets sour. Sometimes, depending on conditions, in the early stages of souring, it forms "sweet clabber", the smooth jelly-like curd that looks very much like junket. But clabbered milk is curds and whey, and curd is mostly casein, separated or precipitated by the acid in the milk.

Milk curdles also if you add acid to it - fruit juices, or tomatoes, for example - unless you do something to prevent. In making cream of tomato soup you prevent curdling thus: First you add a little flour thickening to the tomatoes. The flour acts as a "binder", we say, which means that it holds the molecules of casein where they are, apart from each other in the liquid. The flour also takes the edge off the acid, so to speak, because the protein in the flour combines with the acid and makes it less likely to affect the casein. Second, you add the hot tomato mixture to the milk, little by little. If you were to do this the other way round, adding the milk to the tomatoes, you would be putting so little milk into so much acid - hot acid, too - that your soup would curdle. When you have combined the tomatoes and milk, heat quickly to serving temperature and serve right away. If you let the soup stand before serving, it may curdle. It is well to take precautions when you are making cream of pea and cream of asparagus soup, also, for though these vegetables contain less acid than tomatoes, they contain tannins and salts which may curdle the milk.



Another thing that will curdle milk is rennet--which is the common name for rennin, an enzyme that exists naturally in the stomach, apparently for the purpose of turning milk into a soft, easily digestible curd.. The junket powder you buy in the store contains rennin from the calf's stomach, and when you add it to milk that is just warm (it must not be hot and it must not have been boiled) you get a soft sweet curd that is almost like a jelly, and is so tender that as soon as it is disturbed, even by a spoon to serve it, it separates into curd and whey. You make junket in individual cups to avoid disturbing the curd.

When you cook with milk---that is, when you make a white sauce, or a milk gravy, or a batter for bread or cake, or a custard---your cooking problem has more to do with the other ingredients than with the milk, so long as the milk is sweet. In sauces and gravies you have starch to deal with. In custards, you have eggs. In cake and batter breads, you may have starch and eggs and milk---a combination which is still another story.

In cooking cheese, however, we come back to the rule for protein cookery--low heat for tenderness. If you are cooking plain American cheddar cheese--creaming it for toast, maybe--you cook the white sauce first, add the cheese and heat the mixture only until the fat in the cheese melts and blends with the sauce.

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WASHINGTON, D. C.

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by

Bureau of Home Economics U. S. Department of Agriculture

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cheese

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COOKING FATS

Anybody can cook bacon? They don't agree to that in the Bureau of Home Economics, in the U. S. Department of Agriculture. They say there is decidedly a right way: Lay the strips of bacon in a cold or moderately hot frying pan. Cook slowly and turn the bacon frequently. Or lay the bacon strips on a broiler and cook at moderate heat, likewise turning frequently. When nicely browned lift the slices to a piece of absorbent paper to drain off the excess fat. The point where inexperienced cooks go wrong is at the start--where you should heat gradually, and never let the fat get hot enough to smoke.

There are penalties for breaking this rule. You may spoil the flavor of the bacon--also of the drippings which you could otherwise save and use. You get a smelly smoke all through the house. Also, the smoking fat puts a greasy coating on walls and ceiling and dust settles there.

This happens no matter what you fry, if the fat gets too hot. And the reason is that when fat begins to smoke it begins to decompose. What gets into the air and on the walls are the products of that decomposition, some of them very disagreeable.

Fats, the chemists tell us, are composed of fatty acids and glycerol (glycerin to most of us). There are a good many fatty acids, and the differences between the kinds of fat depend mainly on the combinations of fatty acids they contain. Most fats are liquid or solid according to temperature. All fats "smoke" and decompose when heated beyond a certain point. The melting point and the smoking point vary, however, with the composition of the fat, so the cook's problem is to know what to expect of the particular fat she is using.

Not only for frying must the cook know how fats behave. She uses them also for "shortening" in breads and cakes and pastries, where the problem is not smoking temperature but shortening power. The fat best for frying may not be the best for shortening.

The common cooking fats include such animal fats as lard and beef suet, which are solid unless heated, and a number of vegetable fats -- cottonseed, corn, peanut, olive, coconut, sesame seed -- which are sold in different forms, some solid, some liquid. All these are practically 100 percent fat. There are also "compounds", which are mixtures of animal fats, or animal and vegetable fats, in solid form. Then there are butter and the margarines.

Lard is "rendered" fat from pork - pork fat with the connective tissue cooked up into "cracklins" and strained out. Beef suet is beef fat which is not "rendered". The connective tissue in beef fat is tender enough to be chopped up, along with the fat, and used in puddings. Of the vegetable oils, one of the most familiar is cottonseed oil which has been "hydrogenated" to make the oil solid at ordinary temperatures. This product is sold in sealed tins under various trade names. You can also buy hydrogenated lard.

You choose your cooking fat, of course, according to how you want to use it.

For deep-fat frying, you need a fat which does not smoke until very hot, such as the vegetable oils, solid or liquid, and high quality lard. Even when you have the right fat for the purpose, however, you can't tell by looking at it when it is hot enough. Besides, you have to allow for a difference in frying temperatures for different foods. Cold, wet, raw foods, like potatoes for French frying or potato chips, will cool the fat, which must therefore be hotter at first than is necessary to cook the potato. Foods already cooked, such as croquettes, do not need to be cooked again, but merely heated through and browned on the outside. For doughnuts and fritters, you need less heat because you must give them more time to cook. But how are you to know when the fat is just hot enough?

If you have a thermometer, that is easy. For doughnuts and fritters, the thermometer in the fat should register around 350 to 365 degrees Fahrenheit. For croquettes, around 365 to 380. For potato chips or French fried, still higher - 380 to 390 degrees.

If you do not have a thermometer, test with a 1-inch cube of bread. When such a cube becomes golden brown in 60 seconds, the fat is right for doughnuts or fritters. When it browns in about 40 seconds, it is just right for croquettes. When it browns in 20 seconds, the fat is hot enough for potato chips.

Of course there is trouble if the fat is not hot enough. In that case the food takes up too much fat and becomes soggy and greasy.

For pan-frying you use most any fat, or you use meat drippings, especially salt pork and bacon drippings for the flavor they give. If you have plenty of butter you often use that. Or if you cook the Italian way, you fry in olive oil. But the point in pan-frying is to keep the heat down -- not too low, but low enough to be sure the the fat does not smoke, as it is the more likely to do because it is spread thin over the frying pan. Butter, margarines, some lard, olive oil, and meat drippings all smoke before they get very hot.

The fats used for shortening are as a rule the solid ones--lard, butter, margarines, "compounds" and the various hydrogenated vegetable oils and hydrogenated lard. You use shortening in breads, cakes and pastries because the mixing of flour and water develops gluten--which makes an elastic dough that gets hard and tough when heated. When you add fat to the flour and mix it thoroughly, you separate the particles of flour with a film of fat and prevent the development of gluten when water is added. The dough then is not elastic but "short" and tender, and your biscuit or pie crust will be flaky, and your cake will have a delicate texture.

Fats take up odors and flavors and they turn rancid quickly if kept in a warm place or exposed to light. A fat that is rancid, like one that is smoking hot, has begun to decompose. Therefore, keep your fats cool and in a light-proof can or jar. Meat drippings, especially, need a cool place, because they contain meat juices and spoil if kept near the stove.

You can use fats over and over for deep-fat frying if you take good care of them. That is, strain the fat after each frying, cool it, cover it closely, and put it in the coolest place you have.

Frying, rightly done, gives food a tempting flavor you can get no other way, while as for shortening, you could hardly do without it. So it is important to know your cooking fats and treat them well.

